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ABSTRACT

This manual for administrators and teachers describes The Reading Tests for New York State Elementary Schools. The tests, utilizing the Degrees of Reading Power methodology, are designed to measure the most difficult prose text a student can read with comprehension, and are administered to all sixth grade students as part of the Pupil Evaluation Program. Form A1 is for sixth-graders who are reading below grade level, and Form A2 for those reading at or above grade level. Two additional forms (B1 and B2) are available to schools on an optional basis for the spring testing. The test is untimed, although most students will need one hour of working time. Detailed directions are provided for administering and scoring the tests, as well as interpreting the results. Validity and reliability studies are presented, and the problems associated with grade-equivalent and grade-level readability scores are discussed. (RL)

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READING TEST

FOR

NEW YORK STATE ELEMENTARY SCHOOLS

Forms A and B

Manual for Administrators and Teachers

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FOREWORD

The Degrees of Reading Power (DRP) methodology has been introduced into the Pupil Evaluation Program for a number of reasons. First, the DRP provides teachers with an effective tool for matching instructional materials with student ability. Second, since DRP tests can validly be used to measure individual gain, they can be used to evaluate the effectiveness of reading programs including Title I and PSEN programs. Finally, since DRP test methodology is the basis for the Preliminary and Regents Competency Tests in Reading, the use of DRP tests in the intermediate grades is valuable for providing students with appreciable experience using the DRP test format, as well as for furnishing concrete information concerning the growth required to meet the diploma standard in reading.

The exact composition of a DRP test depends on the purpose or function of the program for which the test was designed. For example, when DRP methodology is used for the Regents Competency Test, the test passages are concentrated around the graduation standard established by the Board of Regents. When it is used for the Preliminary Competency Test, a broad range of passages is used in order to identify students in need of various types of remedial activity. For this reason, students who are above the Preliminary Competency Test cut-off point must also take the Regents Competency Test to ensure that they can read at the Regents standard. When DRP methodology is used in the sixth-grade Pupil Evaluation Program, the tests are tailored to student ability so that maximum information for placement, needs assessment, and growth can be provided.

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DESCRIPTION OF THE TESTS

Purpose of the Tests

The Reading Tests for New York State Elementary Schools are designed to measure the most difficult prose text a student can read with comprehension. Scores obtained on the tests can be used for: (1) evaluating students' current level of achievement in reading; (2) determining the most difficult prose text a student can profitably use in instruction and in independent reading; (3) measuring growth in the ability to read with comprehension; (4) determining statewide trends in students' ability to read with comprehension; and (5) indicating the extent of compensatory or remedial help, if any, that a student may need in order to achieve success on the Regents Competency Test in Reading. The tests are administered to sixth-grade students as part of the Pupil Evaluation Program.

General Features of the Tests

Each of the Reading Tests for New York State Elementary Schools consists of 12 nonfiction prose passages on randomly selected topics. Each passage contains about 300 words. The passages are arranged in order of difficulty, beginning with very easy material and progressing to very difficult material. Test items are formed by the deletion of seven words in each passage, and each deleted word is indicated by an underlined blank space. For each deletion, five single-word response options are provided. Students are required to read the text, select the word that most appropriately fits the blank, and mark their answers on separate answer sheets. There are a total of 84 items on each form of the test, which requires about 75 minutes of testing time.

ADMINISTERING AND SCORING THE TESTS

The Test Materials

The test materials provided by the Department for October use in the Pupil Evaluation Program include: (1) two forms of the test; (2) an NCS answer sheet (hand and machine scorable), (3) hand-scoring overlays, and (4) a manual for administrators and teachers.

One of two forms of the Reading Test for New York State Elementary Schools should be administered to each sixth-grade student. Form A1 should be given to those sixth-grade students who, according to a standardized reading test, are reading below grade level. Form A2 should be given to those sixth-grade students who, according to a standardized reading test, are reading at or above grade level.

Two levels of the test are provided to increase the precision of measurement and hence increase the likelihood of determining gain. Also, two additional forms, B1 and B2, will be provided on an optional basis to schools for the spring testing.

Hand scoring is recommended so that teachers may become familiar with a student's performance. It will also allow them to make informed inferences about carelessness and guessing, which may affect decisions concerning who should be assigned to a particular reading group and/or who should be assigned what reading materials.

For machine processing, several grids containing spaces for recording various types of student identification information have been included on the answer sheet. If the answer sheets are to be machine scored, it is essential that uniform written instructions about the completion of these grids be developed by the school and provided to all examiners administering the test. Such instructions should be based on careful consideration of the types of student and score information the school needs, as well as on the processing requirements of the scoring center which the school is using. Note that the NCS answer sheet is the only one which is supplied by the Department.

Special Considerations for Assuring Optimal Student Performance

If the test results are to provide an accurate measure of each student's reading ability, the directions for administering the test should be followed carefully. The person administering the test should review the directions beforehand and become thoroughly familiar with them. Since the purpose of the test is to obtain the most accurate estimate possible of a student's reading ability, it is essential that students be given an opportunity for fair assessment.

Of course, students should not be given help in interpreting the test questions. They should be advised to answer the questions according to their best judgment. However, the examiner should give students all the assistance required in such mechanics as filling out the heading of the answer sheet and recording the answers.

Test Administration Time

The Reading Test for New York State Elementary Schools is untimed, and students are to be given as much time as they need to answer as many questions as they can. As a general rule, most students will need about 1 hour of working time; in addition, approximately 15 minutes will be necessary for the examiner to provide instructions to the students. Therefore, schools should schedule at least 1½ hours for the test administration. However, some students may need more working time for the test, and schools should make provisions to accommodate such students.

Preparations for Testing

Although special arrangements may be needed for administering the test to large groups of students, these arrangements should interfere as little as possible with the normal school routine. A number of points should be taken into consideration when making arrangements for the testing session.

1. Uniform Directions. The same directions are used to administer all forms of the Reading Test for New York State Elementary Schools. Therefore, all forms may be administered at the same time in the same room.
2. **Selecting the Testing Room. If a room other than the regular classroom is to be used, attention should be given to lighting, ventilation, and the absence of noise and other distractions.**
3. Scheduling the Test. The test should be scheduled, if possible, on Tuesday, Wednesday, or Thursday. The test should not be

scheduled immediately after a period of strenuous physical exercise.

4. Orientation of Students. Any announcements informing students about the test before the test administration should be made in such a way as to increase the students' interest in the test and at the same time not to cause them to become overly anxious and tense. They should be told that no special preparation is necessary and that the test measures reading skills which they use every day in and out of school.
5. Assembling the Test Materials. The materials should be assembled at least 1 day before the test administration. The following materials are needed for this test:

   For each student:
   - Test booklet
   - NCS answer sheet
   - No. 2½ or softer lead pencil

   For the examiner:
   - Directions for Administering and Scoring
   - Test booklet (for demonstration purposes)
   - NCS answer sheet (for demonstration purposes)
   - Instructions for completing the student identification grids on the NCS answer sheet (provided by the school if the answer sheets are to be machine scored)
   - Extra answer sheets and pencils

Detailed Directions for Administering the Test

Make sure that sufficient quantities of all test materials are at hand. Each student should have a No. 2½ or softer lead pencil and the desks should be cleared of books and papers.

When the students are ready to begin the test, say:

> The test you are about to take is a new type of reading test. It is not a timed test. You will be given as much time as you need.
>
> I will now give out the test booklets.

Distribute one test booklet, face up, to each student and say:

> Please leave the test booklet face up on your desk. Do not open the booklet until I am ready to read through the directions with you.

While distributing the answer sheets say:

> Do not write on the answer sheets until I tell you what to do.

After the answer sheets have been distributed, give directions for completing the heading. **Be sure that students clearly indicate on the answer sheet the form of the test they will be taking.** The form of the test may be found on the cover of the test booklet. If the answer sheets are to be machine scored, provide directions for marking any machine-readable name or number grids.

After students have provided the information requested on the answer sheets say:

> Look at the cover of your test booklet. Read the section called "To the Student" to yourself while I read it aloud.
>
> "To the Student
>
> This is a test to find out how well you read. Do your best to read the passages and answer the questions. Work carefully and do not rush. You will be given as much time as you need."
>
> Now, open your test booklet to page 3. Read the directions to yourself while I read them aloud.
>
> "Directions:
>
> This test contains several reading passages. In each passage some words are missing. Wherever a word is missing, there is a blank line with a number on it. Next to the passage you will find the same number and five words. Choose the word that makes the best sense in the blank.
>
> On your answer sheet, find the same number as the blank. Fill in the circle that has the same letter as the word you have chosen. Mark only one answer for each question. If you want to change an answer, be sure to erase your first mark completely. Then mark the answer you want.
>
> Find Samples 1 and 2 on your answer sheet. Read Sample 1 below and see how the right answer has been marked on your

answer sheet. Then read Sample 2 and mark the answer on your answer sheet."

I will wait while you work on these two samples.

Do *not* read the samples aloud. Allow students time to do both sample questions themselves. Then say:

"Look at the answer for Sample 1. The circle for letter *d* is marked because the word *weather* makes the best sense in the blank.

In Sample 2 you should have marked the circle for letter *a* because the word *rain* is the word that makes the best sense in the blank.

As you can see, you may not be sure of the answer to a question until you have read the sentences that come after the blank. So be sure to read enough to answer the questions.

You are not expected to read at the same speed as other people or to answer the same number of questions. As you work on this test, you will find that the passages become harder to read. Do your best to read as many passages as you can and to answer as many questions as you can.

You will be given as much time as you need. Be sure to spend your time on what you can read rather than on what is too hard for you. It is more important to get the answers right for the passages you can read than it is to try to read all the passages on this test.

Remember, mark all your answers on the separate answer sheet, and mark only one answer for each question."

Do you have any questions? Do you know how to mark the answer sheet?

If students do not understand the sample questions or the marking of the answer sheet, the appropriate directions may be explained until everyone knows what to do. After all questions have been answered, say:

When you are finished working on the test, close your booklet and place it on top of your answer sheet. Do you have any questions? Now, turn the page and begin work.

If the test is administered in a regular classroom situation, students should remain quietly at their desks and be allowed to work on other assignments when they finish their tests. The examiner may collect the test materials either as students complete the test or when most of the students have finished.

If the test is administered in a large group situation, schools may prefer to allow students to hand in their test materials as they finish and then leave the room. If so, care should be taken that students leave the room as quietly as possible so as not to disturb the students who are still working on the test.

Scoring the Test

The student's score on the Reading Test for New York State Elementary Schools is the number of questions that the student answers correctly. There is no penalty for wrong answers.

The lists of correct answers for the fall (A1, A2) and spring (B1, B2) administrations are contained in the Appendix.

The same NCS answer sheet may be used with any form of the test (A1, A2, B1, B2), and it may be either hand or machine scored. Some scoring machines can score papers for more than one test form at a time. Other machines require that the answer sheets be presorted by test form. If papers are to be machine scored, check with the scoring service as to the procedure to be followed.

A scoring overlay is provided for each form of the test for use in hand scoring. On each overlay, boxes have been printed to indicate correct answers; when the overlay is aligned properly with the answer sheet, each correct answer will be visible in a box. The answer papers should be sorted by form, and then the following procedure should be used:

1. Select the *appropriate scoring overlay* for the form of the test being scored. Note that the scoring overlay for Form A1 is blue, A2 is green, B1 is blue, and B2 is green.
2. Place the scoring overlay on the answer sheet. Be sure the overlay is correctly aligned so that the boxes correspond to the correct answers.
3. To obtain the total raw score, count the number of correct answers. If a student has marked two or more answers, omit the item in counting the number correct. Place the total raw score in the box provided on the answer sheet.
   (NOTE: Raw scores of 82 or more on Form A1 should not be recorded. If a student took Form A1 in the fall and answered 82 or more questions correctly, Form A2 should

be administered to obtain an estimate of the student's reading ability. Directions are provided below for administering Form A2 after Form A1.)

4. Convert the raw scores into DRP units through the use of the conversion tables provided on pages 24–35. When converting raw scores to DRP units, check to be sure the correct table is being used. If the student took Form A1, the tables on pages 24–26 should be used; if the student took Form A2, the tables on pages 27–29 should be used. The tables for Form B1 are on pages 30–32, and the tables for Form B2 are on pages 33–35.

Directions for Administering Form A2 When a Student Answers 82 or More Questions Correctly on Form A1.

It is possible that Form A1 may have been given to a student who should have been given Form A2. The student will have earned a perfect or near-perfect score on Form A1. However, the student's true reading ability will not be adequately reflected by such a test score. Therefore, to obtain an adequate measure of ability for a student getting 82 or more questions correct on Form A1, Form A2 should be used for testing, with the following procedures:

1. Because the first six passages on Form A2 are also contained in Form A1, the student need not take all of Form A2. Rather, he should take Form A2, starting on Page 16.
   The student should be asked to take Form A2 because "You did so well on the previous test, let's see how well you can do on this one."
   "Start here (pointing to page 16 on Form A2) and mark your answers starting here (pointing to question 43 on a new answer sheet)." Be sure that the student begins marking the Form A2 answer sheet at question 43.
2. In order to score the student's Form A2 answer sheet:
   A. If the student got 84 questions correct on Form A1, add 42 to the total number of correct questions on Form A2, and use the corresponding table to interpret the new raw score in DRP units.
   B. If the student got 83 (or 82) questions correct on Form A1, and if the error(s) occurred on the Form A1 questions listed immediately below, then add 41 (or 40) to the total number of correctly answered questions on Form A2. If the error(s) occurred on other questions, add 42. Use the appropriate table to interpret the new raw score in DRP units.
   Form A1 questions which appear on Form A2:
   15 through 21
   29 through 35
   43 through 49
   57 through 63
   71 through 84

3. To enable machine scoring of the test, the teacher will need to transfer to the student's Form A2 answer sheet the responses for those Form A1 questions which also appear on Form A2. The table below shows the corresponding question numbers for the questions appearing in both forms.

CORRESPONDING QUESTION NUMBERS

Form A1		Form A2
15 through 21	corresponds to	1 through 7
29 through 35	corresponds to	8 through 14
43 through 49	corresponds to	15 through 21
57 through 63	corresponds to	22 through 28
71 through 84	corresponds to	29 through 42

The responses that were chosen for questions 15 through 21 on Form A1 should be transferred to the rows for questions 1 through 7 on the Form A2 answer sheet; the responses chosen for questions 29 through 35 on Form A1 should be transferred to the rows for questions 8 through 14 on the Form A2 answer sheet, etc. Continue this transfer process until the student's Form A2 answer sheet is completed for items 1 through 42.

INTERPRETING TEST RESULTS

The State Reference Point and Remediation Requirements

The Regulations of the Commissioner of Education require schools to provide appropriate remedial instruction to students obtaining scores below a certain point on each of the Pupil Evaluation Program tests. Section 100.1 (f) of the Regulations states:

> Pupils who score below the designated Statewide Reference Point in the third-grade Pupil Evaluation Test shall be provided appropriate remedial instruction designed to enable them to score above the Statewide Reference Point on the sixth-grade Pupil Evaluation Program Test. Pupils who score below the designated Statewide Reference Point on the sixth-grade Pupil Evaluation Program Test shall be provided appropriate remedial instruction designed to enable them to score above the Statewide Reference Point on the preliminary competency tests and/or pass the Regents Competency Test in mathematics. The parent or guardian of a pupil who is to be provided remedial instruction shall be notified in writing, by the principal, of the Pupil Evaluation Program Test results and the plan for

remedial instruction, which shall begin no later than the commencement of the school semester after which the test is given.

Accordingly, a Statewide or State Reference Point (SRP) has been established for each of the two forms of the Reading Test for New York State Elementary Schools that are used in the Pupil Evaluation Program. On Form A1, scores of 70 or more are above the State Reference Point, and on Form A2, scores of 44 or more are above the State Reference Point.

The State Reference Point is a standard expressed in terms of readability. This point represents a seventy-percent likelihood of success on prose materials typically found in textbooks used in grades five and six. Students with scores below the SRP have less

TABLE 1

PLACEMENT DECISIONS BASED ON THE READING TEST FOR NEW YORK STATE ELEMENTARY SCHOOLS FORM A1

Total Number Correct	Probability of Comprehending Textbooks Used in Fifth and Sixth Grade	Comment	Recommendation
82 or above	———	Form A1 inappropriate	Use Form A2[1]
70 to 81	.70 and above	Above the State Reference Point	Increase demands of reading and writing tasks in the regular instructional program
67 to 69	.65 to .69	Below the State Reference Point	Provide remediation in the regular instructional program
59 to 66	.50 to .64	Far below the State Reference Point	Provide remediation beyond that included in the regular instructional program
58 or below	.49 and below	Very far below the State Reference Point	Provide intense individualized remediation

[1]See page . for directions.

than a seventy-percent likelihood of success on prose materials and cannot be expected to acquire sufficient information by reading these materials. Thus, schools are required to provide students with scores below the SRP with specially-designed programs addressed to their needs.

In accord with the mandate to identify students requiring remediation, *four* placement groups have been constituted in relation to the State Reference Point. Tables 1 and 2 on pages 10 and 11 list the four groups according to raw score (total number right) on Forms A1 and A2 of the Reading Test for New York State Elementary Schools. They also indicate the recommended action that should be taken with respect to each group.

Notifying Students and Parents About Test Results and Placement Decisions

After the tests have been given, students and parents must be informed of the student's raw score, its implications, and the

TABLE 2

PLACEMENT DECISIONS BASED ON THE READING TEST FOR NEW YORK STATE ELEMENTARY SCHOOLS FORM A2

Total Number Correct	Probability of Comprehending Textbooks Used in Fifth and Sixth Grade	Comment	Recommendation
44 or above	.70 or above	Above the State Reference Point	Increase demands of reading and writing tasks in the regular instuctional program
41 to 43	.65 to .69	Below the State Reference Point	Provide remediation in the regular instructional program
33 to 40	.50 to .64	Far below the State Reference Point	Provide remediation beyond that included in the regular instructional program
32 or below	.49 and below	Very far below the State Reference Point	Provide intense individualized remediation

school's placement decisions. Students and their parents must also be informed of the content and scope of the reading programs that students are to receive. They should be advised about other reading activities that students should undertake on their own to improve reading skills. As a minimum, information similar to that which appears in letter A in Appendix II must be given both to the parents of students with raw scores of 67 to 69 on Form A1 or 41 to 43 on Form A2 and to the students themselves. For those students whose raw scores are 66 and below on Form A1 or 40 and below on Form A2, information similar to that which appears in letter B in Appendix II should be provided.

Required Records

Schools are required to maintain individual records in all categories for students requiring special assistance, that is, those students scoring below the State Reference Point. These records should indicate the assistance provided over a specified time and should document progress in the ability to read with comprehension. It is prudent to keep on file copies of all correspondence sent to each student and his or her parent.

Recommendations: Students Scoring Above the State Reference Point

For students who achieve raw scores of 70 and above on Form A1 or raw scores of 44 and above on Form A2 of the Reading Test for New York State Elementary Schools, no special reading instruction is required. However, in keeping with the goal of upgrading the reading and writing abilities of all students, these students should be given additional reading and writing tasks within the regular instructional program.

Recommendations: Students Scoring Below the State Reference Point

For purposes of planning appropriate instructional programs, students scoring below the State Reference Point may be viewed as constituting three groups:

1. *Students with raw scores of 67 to 69 on Form A1 or from 41 to 43 on Form A2.* Students in this group, if given consistent and sequential reading instruction within their regular subjects, will probably achieve the level of competency required for high school graduation.

2. *Students with raw scores of 59 to 66 on Form A1 or from 33 to 40 on Form A2.* Students in this group will need the type of assistance which goes beyond that given in regular subjects. Corrective instruction should be provided through well-organized supplementary programs.
3. *Students whose scores fall at or below 58 on Form A1 and at or below 32 on Form A2.* Students in this group exhibit serious reading deficiencies and will need intensive assistance typical of clinical remediation on a very-small group or individualized basis.

Using the Test for Instructional Purposes

A general discussion of DRP methodology is given below to aid the reader in using the test results for managing reading instruction, grouping students of comparable ability, deciding if a particular student is capable of reading text at the level required of students in sixth grade, and selecting text or other materials to match a particular student's instructional needs.

DRP tests measure a student's ability to process and understand nonfiction English prose passages written at different levels of difficulty or readability. The tests identify the hardest prose that students can read with comprehension.

The test items are designed so that the text of the passage must be read and understood in order for the student to respond correctly. All of the response options "fit" the blank space; each one makes a grammatically correct and logically plausible sentence if the sentence is considered in isolation. However, only one response "fits" or is plausible when the surrounding context of the passage is considered. Thus, the selection of the correct response depends on understanding the prose in the surrounding text. The student should be able to respond correctly to all (or nearly all) items in the test, up to the point where he or she cannot understand a passage sufficiently well to decide which word is the correct choice.

The deleted words and the other response options are words in common use and are of uniform difficulty throughout the test. Thus the test items become more difficult only with respect to the difficulty of the text in the passages. The response options are maintained at an easy, constant level so that students will not have difficulty recognizing the response options.

All of the information that is needed to select the correct response is provided in the text of the passages; there is no need to supply information concerning each passage's content from memory or past

experience. This means that the DRP should be culturally fair. Knowing a great deal or nothing about the content of any passage should not bias a student's ability to respond. Only the ability to process sentences for meaning is required for success on the DRP.

The test is not norm-referenced, and no comparisons are made among students. The meaning of a student's score does not depend on comparisons with the performance of students in a norming sample. Instead, the tests measure a student's reading ability on an "absolute" scale. Just as a person's height and weight can be measured accurately without reference to how tall or heavy any other person is, so can reading ability be measured by determining on the prose difficulty scale the hardest text that can be read with comprehension.

Prose Difficulty or Readability

Prose varies in difficulty: it ranges from being very easy to understand at the one extreme, to being very hard at the other. This variability in prose is called readability.

While many factors determine the readability of prose, two or three factors have been shown to account for major differences in prose difficulty. The greater the proportion of common, frequently used words in a sample text, the easier the text is to read. The higher the frequency of simple, short sentences, the easier the prose. Therefore, the readability of prose can be measured by counting the proportion of common words and by calculating average sentence length.

A variety of readability formulas specify how to combine various factors or characteristics of prose. Some formulas (e.g., Spache and Dale—Chall) interpret readability in terms of the grade level at which material is most likely to be used. Although this practice produces simple readability scores, it very often leads to misunderstandings. In order to avoid these sources of confusion and to use the most technically valid measures available, a new measure of readability is being introduced through the DRP tests. Readability is measured in Degrees of Reading Power (DRP) units.

The Measurement of Readability

DRP units form a scale of prose difficulty or readability. The scale ranges from 15 to 100 units. A score of 15 DRP units describes the easiest prose that anyone is likely ever to encounter. It is easier than text normally found in the English language. At the other

extreme of the scale, a score of 100 DRP units represents the most difficult prose imaginable. In practice, commonly encountered English text runs from about 30 DRP units at the easy end to about 85 DRP units at the difficult end.

On Form A1 of the Reading Test for New York State Elementary Schools, the readability levels of the passages range from 34 to 58 DRP units. On Form A2, the readability levels of the passages range from 38 to 83 DRP units. Table 3 is designed to help the reader understand the scale of DRP units by presenting the readability of various passages both in DRP units and in Spache/Dale-Chall values.

Reading Ability and Prose Difficulty

DRP methodology enables predictions to be made concerning the difficulty of prose that a student can read with comprehension. The passages on the test are arranged in order of difficulty from easiest to hardest, and the difficulty of the test items is linked to the readability of the passages. Therefore, the greater the number of test items that the student answers correctly, the harder the text the student can read with comprehension.

With DRP methodology, it is possible to convert the total number of items answered correctly (i.e., the total raw score) to a readability level, which is a prediction of the readability of prose that a student can read with comprehension. It is also possible to convert the total raw score into several different readability levels, or predictions of the readability of prose that a student can read with various likelihoods of success. The likelihood of success, or the degree of comprehension with which a student can read prose of a specified readability level, is provided for three specific and educationally important ability levels: independent reading level, instructional reading level, and frustration level. In order to provide the most appropriate instruction for a student, teachers must know which materials are useful at the student's independent level and instructional level, and which materials can be used under hardly any conditions because they are too difficult or frustrating.

The common way of defining these three levels has been in terms of the proportion of items that the student answers correctly on a test of reading comprehension. Materials at the independent level are commonly defined as those on which the student can answer correctly at least 90% of the items. Materials at the instructional level are commonly defined as those on which the student can

TABLE 3

The Readability of Prose Samples in DRP Units and Spache or Dale-Chall Grade Levels: A Conversion Table[1]

	Readability	
	DRP Units	Spache/Dale-Chall[2]
A bird's wings are well-shaped for flight. The wing is curved. It cuts the air. This helps lift the bird. The feathers are light. But they are strong. They help make birds the best fliers. A bird can move them in many directions. Birds move their wings forward and down. Then they move them up and back. This is how they fly. The tail feathers serve as a brake. They also aid in steering.	38	2.8
A bark canoe proved to be better than a log canoe for several reasons. It hauled heavier loads. It glided more smoothly A log canoe was hard to repair. But cracked, torn, or worn bark could be mended quickly. A bark canoe weighed less than a log canoe. It was so light a lone man could carry it. A log canoe could be no longer than a tree. But a bark canoe was different. It could be almost any length.	43	3.8
The part of a beach between high and low tide is called the middle beach. It is home to many plants and animals. But life on this middle beach is hard. There is no protection against the wash of the oncoming waves. Some animals survive by digging holes in the sand. They can stay in their homes under ground. The undertow will not pull them out to sea. They are safe.	47	5-6

Most creatures take great care to protect their eggs. The walking stick does not. It just drops its eggs, scattering them loosely on the ground. Dozens and dozens drop at a time. As the eggs fall onto dry leaves, they sound like raindrops falling. Many of the eggs do not hatch. But enough do so that the walking sticks will not die out. They have existed on earth since before the era of the dinosaurs.	51	5-6
Between 1935 and 1939, some 350,000 migrants crossed the border from Arizona to California. These migrants came mainly from Oklahoma and Arkansas. For this reason they were called Okies or Arkies. They came from areas badly parched by drought. Lack of rain, combined with strong winds, had meant the loss of countless tons of topsoil. The area was aptly called the "Dust Bowl."	55	7-8
The most ancient hand tool yet identified is the stone hand ax. Such instruments are more than 250,000 years old. Hand axes were made either from flint or from a fine-grained rock that would provide a sharp edge. Using a second stone, flakes were hammered off around the edges. The resulting tool had a jagged cutting edge down each side. It had a crude point and a smooth, round butt. During the thousands of years in which this tool was used, it underwent relatively slight changes in form.	60	9-10

17

Note: [1]The readability calculations are based on longer samples.

[2]Spache (1953) values are calculated for materials from grades one through three, and Dale-Chall (1948) values are calculated for materials from grade four to "college level."

TABLE 3 (Cont.)
The Readability of Prose Samples in DRP Units and Spache or Dale-Chall Grade Levels: A Conversion Table[1]

	Readability	
	DRP Units	Spache/Dale-Chall[2]
Wall paintings are especially vulnerable to atmospheric change. Archaeologists know this. Hence they try to discover, before opening a tomb, whether they will find murals. Special tools have been designed for this purpose. One of the most useful is a kind of camera that can be dropped into the ground before the digging starts. If the camera indicates the presence of wall art, scientists can prepare to take steps to preserve the painting as soon as it is reached.	64	11-12
The ancient Romans' concept of justice and their view of individual rights continue to be guiding forces in contemporary western society. Their code, developed by the emperor Justinian, provided, for example, that no person was punishable for his thoughts, that fathers could not be compelled to bear witness against their sons, nor sons against their fathers, and that the burden of proof rested with the accuser, not with the party denying the accusation.	72	13-15

Thomas Jefferson's belief in man's ability to govern himself is well known, but his views concerning the conditions under which this ability can be successfully realized are less familiar. Jefferson believed that a natural moral sense—which he assumed to be a universal characteristic of mankind—was the initial and basic prerequisite for self-government. The effective operation of this moral sense was then influenced, he believed, by environmental factors, in particular by economic circumstances.	81	16+

19

Note: [1]The readability calculations are based on longer samples.
[2]Spache (1953) values are calculated for materials from grades one through three, and Dale-Chall (1948) values are calculated for materials from grade four to "college level."

answer correctly at least 75% of the items. Materials on which the student can answer only 50% of the items are commonly considered to be at the frustration level. An alternative way of stating these definitions is that the independent, instructional and frustration levels are, respectively, those prose readability levels at which test items would be answered with a .90, .75, and .50 likelihood of success. Through the use of DRP methodology, the test score can identify these three levels for each student. It should be kept in mind that the ability to read material at the independent level rather than the instructional level represents on the Dale-Chall readability scale a difference of from 3 to 4 grade levels in the middle of the scale.

Converting Raw Scores to Reading Ability Levels

The DRP raw score does not by itself provide information concerning what materials the student can read with a given likelihood of success. To give meaning to raw scores they must be converted to DRP units. Table 4 is used for this purpose for Form A1, Table 5 for Form A2, Table 6 for Form B1, and Table 7 for Form B2. In these tables, raw scores are translated into predictions concerning students' ability to read prose materials that have different readability values.

The first column at the left of Table 4 gives the raw score, that is, the total number of questions answered correctly on Form A1 of the Reading Test for New York State Elementary Schools. The entries in the remaining columns are expressed in DRP units. For any given raw score, the column labeled "Independent Level (P=.90)" gives the readability of materials in DRP units for which a student with that raw score has a .90 likelihood of success. Since such a student would also be expected to answer correctly at least 90% of questions based on any easier materials, the tabled entry defines the hardest prose suitable for the independent level. Any easier prose would also fall within the student's independent level.

The set of columns labeled "Instructional Level (P=.75)" gives the readability of materials in DRP units for which students have about a .75 likelihood of success. Because the instructional level is more properly thought of as a range of difficulty rather than a single point, the table shows the range as one standard error (4 DRP units) on either side of the middle value. Thus a lower and upper boundary of the instructional level are defined for each raw score.

The extreme right-hand column entry labeled "Frustration Level (P=.50)" identifies the readability of materials on which students have a 50-50 chance of responding correctly. This level of performance traditionally has been defined as the frustration level for the student. Such materials would be too difficult for most students to use profitably. However, strong readers may want to attack these materials, and they should not be prohibited from doing so. The entry shown in the extreme right-hand column defines the point at which the frustration level begins.

As an example, for Form A1, Table 4 indicates that a student who achieves a raw score of 73 can read and comprehend at the independent level prose materials with a readability level of 45 DRP units or below. The middle value of the instructional level for the same student falls at 56 DRP units. The upper and lower bounds for the instructional range are 60 and 52 DRP units, respectively. Therefore, the instructional level of materials for this student can be as easy as 52 DRP units or as difficult as 60 DRP units. This student may be expected to comprehend material within this range of readability, with instructional support. The final column entry for this same student indicates that materials with DRP unit values of 67 and above will be at the frustration level.

Note that in some columns there are no entries for Form A1 for the very low raw scores, and in some columns for Form A2 there are no entries for the very high and very low raw scores. At the high end of the table, a student with a raw score of 83 on Form A2 can read independently materials with a DRP unit value of 92, which is very difficult text. At the easy end of the table, cells are left empty when there are no materials easy enough to fill them. For example, a student with a raw score of 8 on Form A2 is a poor reader. The tabled values show that there are no materials easy enough for this student to use at the independent level. Materials with a DRP unit value of 19 to 23 are within such a student's instructional level, but the range is bounded only at one side: there are no materials easy enough to define a lower bound or "easy" end for this student's instructional level. Fifteen DRP units defines the lower end of the DRP scale and represents the easiest possible prose that might be found in English.

For Form A2 in Table 5 there is no row of DRP unit values for a perfect raw score of 84. This occurs because the statistical procedures used for making predictions do not apply to a student who answers all the items on the test correctly. In effect, since such a

student has not been given any questions that he or she could not answer, the limit of this student's ability is unknown. Hence, specific predictions cannot be made concerning which materials are suitable for which purposes for students scoring 84 on Form A2. It is safe to assume that no materials commonly used for the sixth grade will pose significant reading problems for such a student. For Form A1 in Table 4 there are no raw scores of 82 or above, since students getting that many questions correct were given the incorrect form and should be tested with Form A2.

To help teachers use the results of the Reading Test for New York State Elementary Schools to match student ability to the difficulty of instructional materials, the Department has prepared a publication entitled "Readability Report in Degrees of Reading Power Units." This publication provides DRP unit readabilities for many of the textbooks currently in use in schools in grades 5, 6, and 8–12. It also provides this information for some of the basal readers used in grade 4. Listings of textbooks are arranged by content area and grouped within content area according to readability level. By using these readability listings together with a measure of student ability in DRP units, teachers will be able to prescribe the appropriate match between student ability and the difficulty of instructional materials.

Work on computing the readabilities of instructional materials commonly used in New York State schools is continuing, and the results will be published in supplements to this initial publication. Schools that are interested in obtaining analyses of instructional materials not yet included in this publication may request them by using the form provided in the appendix, or a facsimile of it. The requests will be catalogued and analyses performed first on those materials with the widest potential for use.

As described in the Readability Report, the DRP unit readabilities are computed following sophisticated and rigorously established procedures which are considered necessary in matching student ability with the difficulty of materials, in order to reduce to a minimum any error that might be attributable to the unreliability of the readability index. Prior to the DRP tests and methodology, less-rigorous procedures might have been acceptable because no precise estimate of student abilities was available to use in matching ability and difficulty.

Until the readabilities of most of the instructional materials used by schools have been computed in DRP units, interim procedures can be used to provide some degree of match between student

ability and the readability of instructional materials. Using the passages in Table 3 as a guideline, it is possible to make judgments about the reading difficulty of materials not yet included in the Readability Report. This can be done by dividing the book into tenths and comparing the text of each tenth of the book to the passages contained in Table 3. When estimated readability values have been assigned to each tenth of the book, it is possible to determine the range of difficulty of materials as well as the rate of increase in difficulty from the beginning to the end of the book.

Students with similar DRP scores can then be assigned to appropriate groups within classrooms or, in the case of team teaching, to particular "classes," and appropriate materials selected for them. Since the instructional levels listed in Tables 4 and 5 overlap for several successive raw scores on the two forms of the test, it is easier for schools to group students and for teachers to select students for small group instruction.

Using the Test as a Diagnostic Instrument

The Reading Test for New York State Elementary Schools is especially designed to aid in the management of instruction. It provides the diagnostic information needed to match student ability to instructional materials, a feature which is considered by many psycholinguists to be the most important diagnostic capability of a test. Matching allows a teacher to control the amount of challenge in various reading situations. A teacher may desire challenge in materials supplemented by instruction but may prefer materials that students can comprehend without help for independent reading. Students who might become bored or frustrated with the usual instructional materials can be identified immediately with the test, and their reading assignments changed accordingly. Both the amount of learning gained from instructional materials and the motivation to read will be greatly affected by proper matching of student ability to text difficulty.

Reading specialists can also use the test diagnostically to identify problems individual students have with the comprehension of prose. A student's test responses can be studied and the student questioned concerning why a particular incorrect answer was selected. This probing procedure will be most useful if the materials are in range for a student; that is, if the student can correctly answer about 70% of the questions.

TABLE 4

Predictions From DRP Raw Scores to the Readability of Prose (in DRP units) That Can Be Read at Different Comprehension Levels

READING TEST FOR NEW YORK STATE ELEMENTARY SCHOOLS

Form A1

Total Items Right	Independent Level (P=.90)	Instructional Level (P=.75)			Frustration Level (P=.50)
		Lower Bound	Middle Value	Upper Bound	
81	60	67	71	76	82
80	57	64	68	73	79
79	55	61	66	70	77
78	53	59	64	68	75
77	51	57	62	66	73
76	49	56	60	65	71
75	48	54	59	63	70
74	46	53	57	62	68
73	45	52	56	60	67
72	44	50	55	59	66
71	43	49	54	58	65
70	42	48	53	57	64
69	41	47	52	56	63
68	40	46	51	55	62
67	39	45	50	54	61
66	38	45	49	53	60
65	37	44	48	53	59
64	36	43	47	52	58
63	36	42	47	51	58
62	35	41	46	50	57
61	34	41	45	50	56
60	33	40	44	49	55
59	33	39	44	48	55
58	32	39	43	47	54
57	31	38	42	47	53
56	31	37	42	46	53
55	30	37	41	45	52
54	29	36	40	45	51
53	29	35	40	44	51
52	28	35	39	44	50
51	28	34	39	43	49
50	27	33	38	42	49
49	26	33	37	42	48

TABLE 4, cont'd

Total Items Right	Independent Level (P=.90)	Instructional Level (P=.75) Lower Bound	Middle Value	Upper Bound	Frustration Level (P=.50)
48	26	32	37	41	48
47	25	32	36	41	47
46	25	31	36	40	46
45	24	30	35	39	46
44	23	30	34	39	45
43	23	29	34	38	45
42	22	29	33	38	44
41	22	28	33	37	44
40	21	28	32	36	43
39	20	27	31	36	42
38	20	26	31	35	42
37	19	26	30	35	41
36	19	25	30	34	41
35	18	25	29	33	40
34	17	24	28	33	39
33	17	23	28	32	39
32	16	23	27	32	38
31	16	22	27	31	38
30	15	22	26	30	37
29		21	25	30	36
28		20	25	29	36
27		20	24	29	35
26		19	23	28	34
25		18	23	27	34
24		18	22	27	33
23		17	21	26	32
22		16	21	25	32
21		16	20	24	31
20			19	24	30
19			18	23	29

TABLE 4, cont'd

Total Items Right	Independent Level (P=.90)	Instructional Level (P=.75) Lower Bound	Middle Value	Upper Bound	Frustration Level (P=.50)
18			18	22	29
17			17	21	28
16			16	20	27
15				19	26
14				18	25
13				17	24
12				16	23
11				15	22
10					21
9					19
8					18
7					16
6 and Below		— All Values Below 15 —			

TABLE 5

Predictions From DRP Raw Scores to the Readability of Prose (in DRP units) That Can Be Read at Different Comprehension Levels

READING TEST FOR NEW YORK STATE ELEMENTARY SCHOOLS

Form A2

Total Items Right	Independent Level (P=.90)	Instructional Level (P=.75) Lower Bound	Middle Value	Upper Bound	Frustration Level (P=.50)
83	92	98			
82	85	91	96		
81	80	87	91	96	
80	77	84	88	93	99
79	75	81	86	90	97
78	73	79	83	88	94
77	71	77	82	86	93
76	69	76	80	84	91
75	68	74	78	83	89
74	66	73	77	82	88
73	65	71	76	80	87
72	64	70	75	79	86
71	63	69	74	78	84
70	61	68	72	77	83
69	60	67	71	76	82
68	59	66	70	75	81
67	59	65	69	74	80
66	58	64	69	73	80
65	57	63	68	72	79
64	56	62	67	71	78
63	55	62	66	70	77
62	54	61	65	70	76
61	53	60	64	69	75
60	53	59	64	68	75
59	52	58	63	67	74
58	51	58	62	67	73
57	50	57	61	66	72
56	50	56	61	65	72
55	49	55	60	64	71
54	48	55	59	64	70

TABLE 5, cont'd

Total Items Right	Independent Level (P=.90)	Instructional Level (P=.75) Lower Bound	Middle Value	Upper Bound	Frustration Level (P=.75)
53	47	54	58	63	69
52	47	53	58	62	69
51	46	53	57	61	68
50	45	52	56	61	67
49	45	51	56	60	67
48	44	50	55	59	66
47	43	50	54	59	65
46	42	49	53	58	64
45	42	48	53	57	64
44	41	48	52	56	63
43	40	47	51	56	62
42	40	46	51	55	62
41	39	45	50	54	61
40	38	45	49	54	60
39	37	44	48	53	59
38	37	43	48	52	59
37	36	43	47	51	58
36	35	42	46	51	57
35	35	41	45	50	56
34	34	40	45	49	56
33	33	40	44	48	55
32	32	39	43	48	54
31	31	38	42	47	53
30	31	37	42	46	53
29	30	36	41	45	52
28	29	36	40	45	51
27	28	35	39	44	50
26	27	34	38	43	49
25	27	33	38	42	49
24	26	32	37	41	48

TABLE 5, cont'd

Total Items Right	Independent Level (P=.90)	Instructional Level (P=.75) Lower Bound	Middle Value	Upper Bound	Frustration Level (P=.50)
23	25	31	36	40	47
22	24	31	35	39	46
21	23	30	34	39	45
20	22	29	33	38	44
19	21	28	32	37	43
18	20	27	31	36	42
17	19	26	30	35	41
16	18	25	29	34	40
15	17	24	28	33	39
14	16	23	27	31	38
13		21	26	30	37
12		20	25	29	36
11		19	23	28	34
10		18	22	26	33
9		16	20	25	31
8			19	23	30
7			17	21	28
6			15	19	26
5				17	24
4					21
3					18
2 and Below		— All Values Below 15 —			

TABLE 6

Predictions From DRP Raw Scores to the Readability of Prose (in DRP units) That Can Be Read at Different Comprehension Levels

READING TEST FOR NEW YORK STATE ELEMENTARY SCHOOLS

Form B1

Total Items Right	Independent Level (P= .90)	Instructional Level (P= .75) Lower Bound	Middle Value	Upper Bound	Frustration Level (P= .50)
83	79	86	90	95	
82	72	79	83	87	94
81	68	74	79	83	90
80	64	71	75	80	86
79	62	68	73	77	84
78	60	66	71	75	82
77	58	64	69	73	80
76	56	63	67	72	78
75	55	61	66	70	77
74	53	60	64	69	75
73	52	59	63	67	74
72	51	57	62	66	73
71	50	56	61	65	72
70	49	55	60	64	71
69	48	54	59	63	70
68	47	53	58	62	69
67	46	52	57	61	68
66	45	52	56	60	67
65	44	51	55	60	66
64	43	50	54	59	65
63	43	49	53	58	64
62	42	48	53	57	64
61	41	48	52	56	63
60	40	47	51	56	62
59	40	46	50	55	61
58	39	45	50	54	61
57	38	45	49	53	60
56	37	44	48	53	59
55	37	43	48	52	59
54	36	43	47	51	58

TABLE 6, cont'd

Total Items Right	Independent Level (P=.90)	Instructional Level (P=.75) Lower Bound	Middle Value	Upper Bound	Frustration Level (P=.50)
53	35	42	46	51	57
52	35	41	46	50	57
51	34	41	45	49	56
50	33	40	44	49	55
49	33	39	44	48	55
48	32	39	43	48	54
47	32	38	43	47	53
46	31	37	42	46	53
45	30	37	41	46	52
44	30	36	41	45	52
43	29	36	40	44	51
42	28	35	39	44	50
41	28	34	39	43	50
40	27	34	38	43	49
39	27	33	38	42	49
38	26	33	37	41	48
37	25	32	36	41	47
36	25	31	36	40	47
35	24	31	35	40	46
34	24	30	34	39	45
33	23	29	34	38	45
32	22	29	33	38	44
31	22	28	33	37	43
30	21	27	32	36	43
29	20	27	31	36	42
28	20	26	31	35	42
27	19	25	30	34	41
26	18	25	29	34	40
25	18	24	28	33	39
24	17	23	28	32	39

TABLE 6, cont'd

Total Items Right	Independent Level (P=.90)	Instructional Level (P=.75) Lower Bound	Middle Value	Upper Bound	Frustration Level (P=.50)
23	16	23	27	31	38
22	15	22	26	31	37
21		21	25	30	36
20		20	25	29	36
19		19	24	28	35
18		19	23	27	34
17		18	22	27	33
16		17	21	26	32
15		16	20	25	31
14			19	24	30
13			18	23	29
12			17	22	28
11			16	21	27
10				19	26
9				18	24
8				16	23
7					21
6					20
5					17
4 and Below		—All Values Below 15—			

TABLE 7

Predictions From DRP Raw Scores to the Readability of Prose (in DRP units) That Can Be Read at Different Comprehension Levels

READING TEST FOR NEW YORK STATE ELEMENTARY SCHOOLS

Form B2

Total Items Right	Independent Level (P= .90)	Instructional Level (P= .75) Lower Bound	Middle Value	Upper Bound	Frustration Level (P= .50)
83	93	99			
82	86	92	97		
81	81	88	92	96	
80	78	84	89	93	
79	75	82	86	91	97
78	73	80	84	88	95
77	71	78	82	87	93
76	69	76	80	85	91
75	68	74	79	83	90
74	67	73	78	82	88
73	65	72	76	81	87
72	64	71	75	79	86
71	63	69	74	78	85
70	62	68	73	77	84
69	61	67	72	76	83
68	60	66	71	75	82
67	59	65	70	74	81
66	58	65	69	73	80
65	57	64	68	73	79
64	56	63	67	72	78
63	56	62	66	71	77
62	55	61	66	70	77
61	54	60	65	69	76
60	53	60	64	69	75
59	52	59	63	68	74
58	52	58	63	67	74
57	51	57	62	66	73
56	50	57	61	66	72
55	50	56	60	65	71
54	49	55	60	64	71

TABLE 7, cont'd

Total Items Right	Independent Level (P=.90)	Instructional Level (P=.73) Lower Bound	Middle Value	Upper Bound	Frustration Level (P=.50)
53	48	55	59	64	70
52	47	54	58	63	69
51	47	53	58	62	69
50	46	53	57	62	68
49	45	52	56	61	67
48	45	51	56	60	67
47	44	51	55	60	66
46	43	50	54	59	65
45	43	49	54	58	65
44	42	49	53	58	64
43	42	48	52	57	63
42	41	47	52	56	63
41	40	47	51	56	62
40	40	46	50	55	61
39	39	45	50	54	61
38	38	45	49	54	60
37	38	44	48	53	59
36	37	43	48	52	59
35	36	43	47	52	58
34	36	42	46	51	57
33	35	41	46	50	57
32	34	41	45	50	56
31	33	40	44	49	55
30	33	39	44	48	55
29	32	39	43	47	54
28	31	38	42	47	53
27	31	37	41	46	52
26	30	36	41	45	52
25	29	36	40	44	51
24	28	35	39	44	50

TABLE 7, cont'd

Total Items Right	Independent Level (P=.90)	Instructional Level (P=.75) Lower Bound	Middle Value	Upper Bound	Frustration Level (P=.50)
23	27	34	38	43	49
22	27	33	38	42	48
21	26	32	37	41	48
20	25	31	36	40	47
19	24	30	35	39	46
18	23	30	34	38	45
17	22	29	33	37	44
16	21	28	32	36	43
15	20	27	31	35	42
14	19	25	30	34	41
13	18	24	29	33	40
12	17	23	28	32	39
11	15	22	26	31	37
10		20	25	29	36
9		19	23	28	34
8		17	22	26	33
7		16	20	25	31
6			18	23	29
5			16	20	27
4				18	24
3					21
2					16
1 and Below		—All Values Below 15—			

Because of the unique characteristics of the test, it is also possible for teachers to derive diagnostic information by examining the pattern of a student's answers. For example, if a student receives a score of 5 or less on a passage and scores 6 or 7 on subsequent passages, then carelessness can be assumed on the easier passage. If the student misses most of the questions on the beginning passages and then improves, guessing is a possible reason.

Organizing Reading Programs

In organizing programs both to refine the skills of able readers and to provide remediation designed to correct reading deficiencies, the following concepts should be given consideration:

- The development of reading ability and the remediation of reading deficiencies is a responsibility of all teachers. Reading instruction should be included in the teaching of all subjects.
- The further students are below the State Reference Point, the more intense the instruction needed for them to learn to read with comprehension.
- Students make the most progress by reading prose that falls within their instructional level.
- Comprehension at the level at which students are able to grasp, reorganize, and restate the message of written materials is a fundamental prerequisite for more advanced levels of comprehension and for the development of understanding at higher interpretive or critical levels. It is therefore good practice to implement instructional models that require active processing of materials at students' instructional levels.
- Instructional programs should require that students write about what they have read. This facilitates the development of both reading and writing skills.
- Students are motivated to read when given reading materials both appropriate for their level of reading ability and in accord with their interests. A wide variety of reading materials should be available in schools and classrooms to increase the likelihood that materials appropriate in difficulty will be used with every student.

Programs based on these concepts require a significant commitment of school resources, instructional time, and staff effort. It is only through such commitment on an organized and continuing basis that the reading skills of all students can be developed.

Scaled Scores for Evaluating Growth

In order to statistically evaluate gains in student reading comprehension over educationally relevant periods of time, DRP scores from all DRP forms must be expressed on a common scale of measurement. Although DRP units are on a common scale, they do not necessarily have all the technical properties required for application to all statistical tests. This is due to the fact that DRP units are derived from the Bormuth readability scale, which is fundamentally a percentage scale on which the units may not represent equal intervals. However, the DRP scores that are the product of Rasch analyses and item bank calibration *do* form an interval scale with all the necessary properties. These scores, which are expressed in Rasch "logits," form the basis for DRP scaled scores. A simple linear transformation has been applied to the logit scores to provide a scale which is easy to use and understand. The transformation results in a set of DRP scaled scores.

DRP scaled scores appear in Tables 8, 9, 10, and 11 for Forms A1, A2, B1, and B2, respectively. The total number right on a given form is converted to a DRP scaled score. These scaled scores may be added and subtracted so that individual and group gains can be calculated.

Although the scaled scores should be used in statistical tests, the educational meaning of score differences for individual students is best evaluated by using DRP units. If students can read at the instructional level more-difficult materials on the posttest than on the pretest, then these results would be educationally important. In general, a gain of 4 or more DRP units is important. An increase of 4 DRP units corrresponds to an increase of approximately 45 in scaled scores.

TABLE 8

Conversion Table
DRP Raw Scores to DRP Scaled Scores
READING TEST FOR NEW YORK STATE ELEMENTARY SCHOOLS
Form A1

Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score
84		63	740	42	613	21	488
83	1083	62	733	41	607	20	481
82	1014	61	726	40	602	19	474
81	973	60	719	39	596	18	466
80	943	59	712	38	591	17	459
79	919	58	706	37	585	16	450
78	899	57	699	36	580	15	442
77	882	56	693	35	574	14	433
76	866	55	687	34	569	13	424
75	853	54	681	33	563	12	414
74	840	53	675	32	557	11	403
73	828	52	669	31	551	10	392
72	817	51	663	30	546	9	379
71	807	50	658	29	540	8	366
70	797	49	652	28	534	7	351
69	788	48	646	27	528	6	334
68	779	47	641	26	521	5	315
67	771	46	635	25	515	4	291
66	762	45	630	24	509	3	262
65	755	44	624	23	502	2	222
64	747	43	618	22	495	1	154

TABLE 9

Conversion Table
DRP Raw Scores to DRP Scaled Scores

READING TEST FOR NEW YORK STATE ELEMENTARY SCHOOLS
Form A2

Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score
84		63	922	42	777	21	622
83	1269	62	914	41	770	20	613
82	1201	61	907	40	763	19	604
81	1160	60	899	39	757	18	595
80	1130	59	892	38	750	17	586
79	1106	58	885	37	743	16	576
78	1086	57	878	36	736	15	566
77	1069	56	871	35	729	14	555
76	1053	55	864	34	722	13	544
75	1039	54	857	33	715	12	533
74	1026	53	850	32	708	11	520
73	1014	52	844	31	700	10	507
72	1003	51	837	30	693	9	493
71	993	50	830	29	686	8	478
70	982	49	824	28	678	7	461
69	973	48	817	27	670	6	442
68	964	47	810	26	663	5	421
67	955	46	804	25	655	4	395
66	946	45	797	24	647	3	363
65	938	44	790	23	639	2	320
64	930	43	784	22	630	1	250

TABLE 10

Conversion Table
DRP Raw Scores to DRP Scaled Scores

READING TEST FOR NEW YORK STATE ELEMENTARY SCHOOLS
Form B1

Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score
84		63	804	42	672	21	541
83	1150	62	797	41	666	20	533
82	1081	61	790	40	660	19	526
81	1040	60	783	39	655	18	518
80	1010	59	776	38	649	17	510
79	986	58	769	37	643	16	501
78	966	57	763	36	637	15	492
77	948	56	756	35	631	14	483
76	933	55	750	34	625	13	473
75	919	54	743	33	619	12	463
74	906	53	737	32	613	11	452
73	894	52	731	31	607	10	441
72	883	51	725	30	601	9	428
71	872	50	719	29	595	8	414
70	863	49	713	28	588	7	399
69	853	48	707	27	582	6	382
68	844	47	701	26	575	5	362
67	836	46	695	25	569	4	339
66	827	45	689	24	562	3	309
65	819	44	684	23	555	2	268
64	812	43	678	22	548	1	201

TABLE 11

Conversion Table
DRP Raw Scores to DRP Scaled Scores

READING TEST FOR NEW YORK STATE ELEMENTARY SCHOOLS
Form B2

Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score	Total Items Right	DRP Scale Score
84		63	926	42	788	21	646
83	1278	62	919	41	782	20	638
82	1209	61	911	40	776	19	629
81	1167	60	904	39	770	18	621
80	1137	59	897	38	763	17	612
79	1112	58	890	37	757	16	602
78	1092	57	883	36	751	15	592
77	1074	56	877	35	745	14	582
76	1058	55	870	34	738	13	572
75	1044	54	864	33	732	12	560
74	1030	53	857	32	725	11	548
73	1018	52	851	31	718	10	535
72	1007	51	844	30	712	9	522
71	996	50	838	29	705	8	507
70	986	49	832	28	698	7	490
69	977	48	825	27	691	6	471
68	967	47	819	26	684	5	450
67	959	46	813	25	677	4	425
66	950	45	807	24	669	3	393
65	942	44	801	23	662	2	351
64	934	43	795	22	654	1	281

TECHNICAL CHARACTERISTICS

Validity and Reliability Studies

The State Education Department has considerable evidence that, in conventional terms, the DRP is a highly reliable and valid measure. Its technical adequacy is so strong that DRP validity and reliability can be evaluated by natural science standards.

A set of studies was designed to evaluate whether the DRP is valid and reliable in accordance with the meanings of these terms in the natural sciences. For these studies, 24 DRP passages were prepared, each containing seven items. These 24 passages were comprised of two passages at each of 12 levels of difficulty ranging from extremely easy prose (about first grade) to quite difficult prose (about college level). The two passages at each level of difficulty were then randomly assigned to one of two test forms. Approximately 5,000 fourth- and sixth-grade students, drawn from schools in New York State where the minority population varied from 20 to 80 percent, were assigned at random to participate in any one of the studies.

Construct Validity and the Meaning of DRP Passage Difficulty Scores

A number of studies were carried out to determine whether the average item difficulty per DRP passage is accounted for by the difficulty of the surrounding prose.

In one experiment the issue was whether the difficulty of DRP items would change when the difficulty (readability) of the surrounding text was altered. The fact that the difficulties of identical items (test sentences and response options) varied as a function of the difficulty of the prose in which they were embedded showed that DRP item difficulties measured the readability of prose.

In another study, an attempt was made to determine whether surface linguistic variables known to account for readability could predict DRP passage difficulties. The mean and median Rasch item difficulties were calculated for each passage.[1] These average passage

[1] The DRP fits the Rasch model. This model states that the probability of a correct response is a function of the difference between the difficulty of that item and the ability of the person responding. For an item of moderate difficulty, for example, high-ability students should have a greater probability of success than low-ability students. Rasch item difficulties are "sample free," i.e., they do not depend upon the distribution of abilities in a sample if test data fit the model.

difficulties became the criterion scores in two multiple correlations. The predictor variables were the proportion of hard words, the average word length, and the average sentence length per passage. The multiple R's between the predictor variables and mean and median passage difficulty were, respectively, R=.98 and R=.96 for one form, and R=.95 and R=.96 for another form. Thus, essentially all the variance in average passage difficulty was accounted for by the surface variables. As best as can be measured, the mean or median Rasch item difficulties have no meaning other than indexing the difficulty of prose.

In another correlational study the mean and median DRP passage difficulties were essentially accounted for by Bormuth's (1969) mean cloze formula for forecasting readability. The DRP passage difficulties for both forms correlated ($r=-.98$) with Bormuth's (1969) measure of readability.[1]

These findings are important for several reasons. First, on the DRP, ability is a function of the difficulty of the items answered correctly. The more difficult the items answered correctly, the higher the ability. Second, since DRP item difficulties depend wholly upon the difficulty of the prose in which they are embedded, the higher a person's ability, the greater the person's capability for reading difficult prose. Third, the near perfect correlation between the average item difficulties of the DRP passages and the Bormuth readability values for the passages allows technically meaningful cut-off scores to be calculated if standards are formulated in terms of readability requirements. Once such a standard is formulated, the ability required to comprehend at that readability level can be predicted, guarding against false passes and failures at given levels of risk. The DRP can also be used to forecast the likelihood that students of different abilities will be able to read prose at given levels of readability.

Predictive Validity: Forecasting the Likelihood that Subjects Can Comprehend Prose at Given Levels of Difficulty

Manipulations with the Rasch model enable the probabilities of success on prose reading tasks for students of different (DRP) abilities to be forecasted. The validity of these procedures depends on the

[1] Note that the Bormuth mean cloze scores form a scale where high scores indicate easy materials, while Rasch values increase within difficulty as do, by definition, mean and median passage difficulties; hence the negative correlation.

fact that DRP data fit the Rasch model, and the fact that average DRP passage difficulties measure readability. Even so, a major uncertainty had to be reduced: do DRP passage difficulties measure readability only for the particular (e.g., informationally complete) expository prose of the DRP or do they forecast what students can do with other prose tasks? This uncertainty was reduced in an experiment, as follows.

The DRP was administered to students, and ability groups were constituted by predicting which subjects would be at the instructional level (i.e., have a .75 likelihood of correctly answering DRP-type questions) on each of six prose passages in a set arranged for increasing difficulty. When forecasts were compared with the actual success of students, the DRP did predict the traditional ($P=.75$) instructional level. It also predicted which students would have a .90 likelihood of success (commonly referred to as the independent level) with materials of different levels of readability. Other predictions were also confirmed. Thus the DRP can predict how much information will be acquired or gained from ordinary prose.

Parenthetically, one prediction that was confirmed is particularly important in using the DRP to match materials with student ability. It was shown that giving students intact text to read just before they took a comprehension (cloze) test led to "mastery" level performance *if, and only if,* the readability of the text was in instructional range relative to subjects' ability as predicted by the DRP (i.e., if the predicted probability of success on that text equalled $P=.75$). Thus, if the aim of instruction is to enable individuals to master materials in terms of assimilating their content, it would appear that the conventional wisdom elaborated several decades ago is correct: no materials more difficult than those falling within an individual's instructional level should be used.

Evidence that the DRP is Culture Fair

Using the data collected for the aforementioned information acquisition and gain study, a set of demanding tests for bias were performed. The results of these analyses showed that DRP ability scores do not have to be conditioned by knowledge of sex, race, or socioeconomic status in making predictions concerning what students will do on prose reading tasks. In other words, students receiving the same DRP scores were able to gain the same information from ordinary prose regardless of their sex, ethnic background, or socioeconomic level.

The Measurement of Individual Gain

Evidence was obtained that DRP tests can measure *individual* gain over a five-month interval even when broad-band test forms (covering a wide range of readability) are used. Two randomly constituted "parallel" broad-band forms of the DRP were administered to fourth- and sixth-grade students, with a 5-month interval between tests. All ability levels evidenced gain, and this gain was statistically significant for all but the highest ability group in grade 4.

Reliability: Making the Same Decision Concerning Ability with Repeated Measurements

When randomly constituted "parallel" forms of the DRP were administered with only a two-week interval between tests, no real differences were observed between ability scores.[1] Thus the DRP does, in fact, make the same ability decision with repeated measurements. This measure of reliability, unlike correlation, does not depend on determining whether rank order remains invariant over time. Instead, it measures whether within-individual performance is the same over a time period when no change in ability is expected. In a similar fashion, the test for gain (see above) determines whether within-individual change is obtained over a period of time in which change *is* expected. Both tests are in accord with the constructs of reliability and change as they are elaborated in the natural sciences.

Grade-Equivalent and Grade-Level Readability Scores

With few exceptions, grade-equivalent scores are usually provided for standardized achievement tests. However, for several reasons, it is not desirable to provide this type of score.

The first problem with grade-equivalent scores is that no meaningful "average" or typical score exists for any given grade. In a given grade, when the number of students getting each score is plotted, the curve is almost never symmetrical about some "average" raw test score. For grade-equivalent scores to be meaningful, a typical score for a grade is needed.

The second problem with grade-equivalent scores is that they lead to misunderstandings. There is a tendency to confuse the grade-

[1] Scores for the lowest ability groups—those scoring essentially at the chance level for random guesses on a multiple choice test—did increase over the two-week interval. However, since this regression is best interpreted as being due to guessing, it is ignored for purposes of interpreting the remainder of the data from this study.

equivalent score with a desired or ideal standard of performance, which it is not. There is also a tendency to make the judgment that students are doing satisfactory work if they are performing up to the "norm."

The third major problem with grade-equivalent scores is that they may impede good educational practices in reading instruction. In making reading assignments, it is important to know the difficulty of materials a given student can read with and without help, and to know which materials are beyond the ability of the student. The grade-equivalent score may be mistakenly assumed to designate the grade-level text that should be assigned for reading instruction. The grade-equivalent score explicitly does not have this meaning. Even though highly skilled reading teachers may, on the basis of experience, develop a way to predict what materials a student can read from the student's grade-equivalent score, such predictions are bound to be wrong on occasion, because scores provided on norm-referenced tests were simply not designed to say anything about which materials a student can read.

In addition, there are a variety of reasons why grade-level readability scores are not provided. First, grade-level readability scores would be readily confused with grade-equivalent reading scores. Second, grade-level readability scores are based on informal "normative" methods, and there is no longer a need to rely on such informal methods. Third, the most technically adequate and valid method to measure readability across the *entire* range of prose difficulty does not express readability in terms of grade levels.

APPENDIX I

Lists of Correct Answers
for
Forms A1, A2, B1, and B2

FORM A1

1 b	22 b	43 a	64 c
2 c	23 c	44 e	65 e
3 a	24 a	45 d	66 b
4 d	25 e	46 c	67 e
5 c	26 b	47 e	68 a
6 d	27 b	48 b	69 c
7 e	28 e	49 d	70 e
8 d	29 e	50 a	71 b
9 c	30 b	51 c	72 d
10 a	31 d	52 a	73 a
11 b	32 c	53 b	74 d
12 b	33 a	54 e	75 c
13 a	34 d	55 d	76 e
14 d	35 e	56 b	77 b
15 b	36 c	57 c	78 b
16 c	37 c	58 a	79 b
17 a	38 a	59 e	80 d
18 b	39 b	60 b	81 a
19 c	40 e	61 d	82 e
20 e	41 e	62 a	83 b
21 a	42 d	63 c	84 e

FORM A2

1 b	22 c	43 b	64 a
2 c	23 a	44 a	65 c
3 a	24 e	45 c	66 b
4 b	25 b	46 d	67 e
5 c	26 d	47 b	68 d
6 e	27 a	48 d	69 e
7 a	28 c	49 e	70 a
8 e	29 b	50 b	71 b
9 b	30 d	51 d	72 c
10 d	31 a	52 a	73 b
11 c	32 d	53 e	74 b
12 a	33 c	54 b	75 a
13 d	34 e	55 c	76 c
14 e	35 b	56 a	77 a
15 a	36 b	57 d	78 e
16 e	37 b	58 e	79 d
17 d	38 d	59 b	80 e
18 c	39 a	60 c	81 a
19 e	40 e	61 a	82 c
20 b	41 b	62 d	83 b
21 d	42 e	63 e	84 e

FORM B1

1 b	22 c	43 b	64 d
2 a	23 d	44 a	65 c
3 c	24 b	45 b	66 b
4 b	25 e	46 c	67 a
5 c	26 d	47 a	68 e
6 d	27 b	48 b	69 d
7 e	28 a	49 d	70 c
8 c	29 e	50 c	71 b
9 a	30 a	51 a	72 a
10 d	31 d	52 e	73 e
11 e	32 e	53 c	74 c
12 b	33 b	54 d	75 d
13 c	34 c	55 e	76 a
14 e	35 a	56 a	77 c
15 c	36 b	57 d	78 b
16 e	37 c	58 a	79 b
17 a	38 b	59 c	80 a
18 c	39 d	60 e	81 a
19 d	40 e	61 b	82 c
20 e	41 a	62 d	83 d
21 a	42 e	63 b	84 e

FORM B2

1 c	22 c	43 c	64 b
2 e	23 a	44 d	65 b
3 a	24 e	45 d	66 c
4 c	25 c	46 c	67 e
5 d	26 d	47 c	68 a
6 e	27 e	48 e	69 c
7 a	28 a	49 a	70 c
8 e	29 d	50 b	71 a
9 a	30 c	51 c	72 b
10 d	31 b	52 a	73 d
11 e	32 a	53 e	74 a
12 b	33 e	54 d	75 e
13 c	34 d	55 e	76 c
14 a	35 c	56 b	77 d
15 b	36 b	57 c	78 a
16 a	37 b	58 c	79 b
17 b	38 a	59 a	80 e
18 c	39 a	60 e	81 c
19 a	40 c	61 c	82 d
20 b	41 d	62 b	83 e
21 d	42 e	63 d	84 a

APPENDIX II
Sample Letters to Parents

LETTER A

The sample letter below contains the type of information that schools must provide the parent(s) or guardian(s) of students with scores below the State Reference Point (students with scores of 67 to 69 on Form A1 or 41 to 43 on Form A2). When appropriate, the letter should be written in the native language of the parent(s).

Dear (Mr. and Mrs. Smith):

Your (son John) took the Reading Test for New York State Elementary Schools on (date) and correctly answered (68) of the 84 questions on Form A1 of the test.

This test score indicates that (John) does not yet read well enough to be likely to pass the Regents competency test in reading which (he) will be taking in grade 11 or grade 12. (He) must pass that test in order to receive a high school diploma. It is very important, therefore, that (John) continue to improve (his) reading ability.

As we work with (John) on improving (his) reading, you can also help. One way (John) can improve (his) reading is to do a lot of it. You, therefore, can help by encouraging (him) to read at home. (He) should read whatever interests (him); the more (he) reads, the better (he) will be able to read.

If you want to know more about the Reading Test for New York State Elementary Schools or how to help (John) read better, please call ( ) at (telephone number).

Sincerely yours,

(School Administrator)

Letter B

The sample letter below contains the type of information that schools must provide the parent(s) or guardian(s) of students with scores far and very far below the State Reference Point (students with scores of 66 or below on Form A1 or scores of 40 or below on Form A2). When appropriate, the letter should be written in the native language of the parent(s).

Dear (Mr. and Mrs. Smith):

Your (daughter Mary) took the Reading Test for New York State Elementary schools on (date) and correctly answered (60) of the 84 questions on Form A1 of the test.

(Mary's) test score indicates that (she) cannot read many of the books commonly used in elementary school courses. (Mary) may not be progressing at a rate that will allow her to pass the Regents competency test in reading, and (she) must take and pass this test in grade 11 or grade 12 in order to receive a high school diploma. It is, therefore, very clear that (Mary) must improve (her) reading ability.

In order to help (Mary) improve (her) reading ability, we are placing (her) in a special reading program called: _____. A description of this program is enclosed with this letter.

As parents, you can also help (Mary) improve (her) reading skills. You can encourage (her) to do a lot of reading at home. The more (she) reads, the more (her) reading will improve. (She) should read whatever interests (her) and should read as much as possible.

If you have any questions about (Mary's) test score or (her) special reading program, or about how you can help improve (her) reading, please call ( ) at (telephone number).

Sincerely yours,

(School Administrator)

Enc.

APPENDIX III
Bormuth's Mean Cloze Readability Formula

Bormuth's Mean Cloze Readability Formula: An Abstract

1. Because cloze deletions ensure *prima facie* that the difficulty of questions is tied to the difficulty of the material, Bormuth (1969) decided to develop a readability formula which predicts the average number of correct restorations of text from a set of linguistic variables.

2. His method was to randomly select 330 prose passages, develop any cloze tests (every fifth word deleted) and administer the tests, all 5 forms of all passages, to a large sample of students in grades 4–12. The average number of correct restorations per passage was calculated for each passage over all students. These average cloze scores were, by definition, his criterion scores of passage difficulty.

Bormuth then found a more-or-less efficient set of linguistic variables which predicted the criterion scores via multiple regression techniques. As in other research *not* using cloze as the criterion, he found that the proportion of "easy" words on the Dale-Long list, word length (in number of letters), and sentence length predicted the difficulty of the passages as known from the average cloze scores. Note: Bormuth adopted the Dale-Chall practice of counting the names of people, nationalities, places and certain other proper nouns as if they were common words.

3. Bormuth tested the adequacy of his equation by (a) predicting the readability of a new set of passages; (b) giving cloze tests of the new passages to a sample of students; and (c) determining the correspondence between the mean cloze results and predictions. The correlation ($r = .92$) was acceptably high; the formula does predict cloze scores.

4. In the literature the Bormuth formula is generally viewed as technically and linguistically superior to other formulas in the following respects: (a) it provides a continuous scale over the entire range of readability of first-grade through at least twelfth-grade instructional materials; (b) it has a higher validity coefficient in original development ($r = .83$) and in cross-validation ($r = .92$) than other readability formulas; (c) it has relatively low standard errors of measurement ($S_{em} = .06$ in original development and $S_{em} = .04$ in cross

validation); (d) cross-validation data have been published; (e) cloze test scores, rather than multiple choice tests or expert judgments, were used to rate passage difficulty; cloze test scores are more objective than these other methods of rating passage difficulty.

To the extent that the formula is a high-fidelity predictor of cloze, there is potentially another advantage. As Taylor (1953) notes, cloze scores show that a sentence such as "To be or not to be," though made up of "easy" words, is, nevertheless, rather difficult; i.e., cloze scores are low. Unfortunately, Bormuth (1969) does not present any evidence that his formula would predict the cloze results in such instances.

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APPENDIX IV
Request for Readability Analysis

REQUEST FORM FOR READABILITY ANALYSIS

An integral component of the DRP methodology is the matching of student ability to the difficulty of instructional materials. To aid in this matching, the Department is continuously analyzing commonly-used textbooks for readability. The books analyzed thus far appear in the publication entitled "Readability Report in Degrees of Reading Power Units."

If there are additional books you would like analyzed for readability, please supply the information requested below. The most frequently cited textbooks will appear in the readabililty analysis to be published in the fall of 1980.

Title of Textbook _____

Publisher(s) _____

Copyright Date _____

Subject Area _____ Grade in Which Used _____

Name: _____

District: _____ School: _____

Address: _____

Phone No. (Indicate Area Code) _____

Please mail the completed form to:

Division of Educational Testing
Room 761
New York State Education Department
Albany, New York 12234